

***Chiloglottis jeanesii* (Orchidaceae), a New Species from Victoria**

David L. Jones

Centre for Plant Biodiversity Research, GPO Box 1600, Canberra, Australian Capital Territory 2601, Australia.

Abstract

Chiloglottis jeanesii D.L. Jones sp. nov., from Victoria, related to *C. valida* D.L. Jones and *C. chlorantha* D.L. Jones, is described and illustrated. *Chiloglottis jeanesii* can be distinguished by its widely spreading petals, relatively narrow (c. 5 mm wide) column and usually three columnar basal calli on the labellum.

Introduction

Continuing studies into the genus *Chiloglottis* R. Br. (Jones 1991) in south-eastern Australia have revealed the presence of a taxon in southern Victoria which is here described as a new species. This species was at first suspected to be a natural hybrid between *C. valida* D.L. Jones and *C. cornuta* Hook. f. but an isozyme analysis of all three taxa, using leaf material supplied by Jeffrey Jeanes, has shown that this is not the case. As well, my studies have shown that *C. cornuta* is autogamous and unlikely to be involved in hybridisation. Pollination of most species in this genus is by sexual deception and experiments by Bower (1992, 1996) have shown a high degree of pollinator specificity exploiting male flower wasps (Tiphidae: Thynninae). Choice baiting studies on the new taxon have shown that it has a unique pollinator (*C. Bower pers. comm.*). These data suggest that the morphological novelty of this taxon arose via divergence rather than hybridisation and taxonomic recognition at specific rank is justified.

Methods

This study is based on the examination of fresh flowers collected from localities in south-eastern Australia, examination of dissected flowers mounted on cards, also dried and spirit-preserved herbarium specimens and photographs of living flowers of the taxa involved. Herbarium collections (spirit and dried) were examined from AD, CANB, HO and MEL. Measurements given in the description are from living plants or dissected flowers on cards.

The isozyme banding patterns of leaf portions sampled from populations of *C. valida*, *C. cornuta* and *C. jeanesii* were obtained by Ish Sharma using starch gel electrophoresis. The methods used in this study have been outlined previously (Sharma and Jones 1992).

Taxonomy

Chiloglottis jeanesii D.L. Jones, sp. nov.

Affinis *C. validae* D.L. Jones sed partibus perianthii minoribus (sepalo dorsali ad 20 × 7 mm, sepalis lateralibus ad 17 × 2.5 mm; petalis ad 16 × 3 mm), petalis late patentibus; callis basalibus columnaris 3, et columna multo angustiore, differt; etiam *C. chloranthae* D.L. Jones affinis sed callis basalibus columnaris paucioribus (plerumque 3), differt.

Type: Victoria, Toorongo, *C. Bower* (Jones 13809), 14.i.1995 (holotype CANB, isotypes AD, BRI, MEL, NSW).

Chiloglottis sp. aff. *valida* sensu Backhouse & Jeanes, *Orchids of Victoria* 137 (1995); *Chiloglottis* sp. A sensu Entwisle, *Fl. Victoria* 2: 747 (1994).

Illustration: Backhouse and Jeanes, *Orchids of Victoria* 137 (1995).

Terrestrial tuberous herb forming colonies. *Leaves* broadly elliptical, 5–7 cm long, 2–3 cm wide, dark green above, paler beneath, with prominent veins, entire; petioles 8–18 mm long. *Peduncle* 3–5 cm long, green to brownish, fleshy. *Fertile bracts* elliptical-lanceolate to obovate-lanceolate, acuminate, 15–20 mm long, 7–10 mm wide, closely sheathing, acuminate. *Pedicel* 15–20 mm long, very slender. Ovary c. 10 mm long, green. *Flower* solitary, 25–30 mm across, green to dark purplish brown, with shiny black labellum calli. *Dorsal sepal* obovate, 17–20 mm long, 7–9 mm wide, erect, incurved close to the column; osmophore c. 1.3 mm long, linear-terete, tapered. *Lateral sepals* narrowly linear-tapered, 14–17 mm long, c. 2 mm wide, broadest near the base then tapered to the apex, projected forwards beneath the labellum, more or less parallel; osmophore c. 1 mm long, linear-filiform, green. *Petals* narrowly lanceolate, 13–16 mm long, c. 2.3 mm wide, falcate, acute, widely divergent, curved upwards towards the apex. *Labellum* articulated on a short claw c. 0.7 mm long, tremulous; lamina ovate-cordate in outline, 10–13 mm long, 9–12 mm wide, entire, often with a light marginal band. *Lamina callus* occupying the central proximal half of the ventral surface area, the calli shiny black; major central gland c. 2.5 mm long, linear-terete, columnar, obtuse, erect, curved apically, this flanked by 2 similar, but shorter, calli; distal to these 3 basal calli are 3 or 4 pairs of short, irregular calli; distal gland more or less quadrate, c. 1 mm across, sessile. *Column* incurved, 12–15 mm long, 5–6 mm wide, green to brown, with reddish flecks and irregular markings on the anterior surface; wings c. 2.3 mm broad, extending above the anther, subacute. *Anther* c. 2.2 mm long, c. 2 mm, smooth, with a short rostrum, yellow. *Pollinia* boomerang-shaped, c. 2.7 mm long, yellow, mealy. *Stigma* ovate-elliptical, c. 2.2 mm across. *Capsule* obovoid, 10–12 mm long, 5–6 mm wide, on a swollen pedicel c. 15 cm long. (Fig. 1)

Distribution

Endemic in southern Victoria where restricted to montane habitats of the Eastern Highlands between the Sherbrooke Forest and the Baw Baw Plateau.

Ecology

Occurs in tall wet sclerophyll forest dominated by *Eucalyptus regnans* F. Muell. or *E. obliqua* L'Hérit and cool temperate rainforest dominated by *Nothofagus cunninghamii* (Hook.) Oerst. Soils are well-structured clay loams, often krasnozems. Altitude range 800–1500 m. Flowering November–January.

Recognition

This species has similarities to both *C. valida* and *C. chlorantha*. It can be distinguished from *C. valida* by its smaller perianth parts (dorsal sepal to 20 mm long

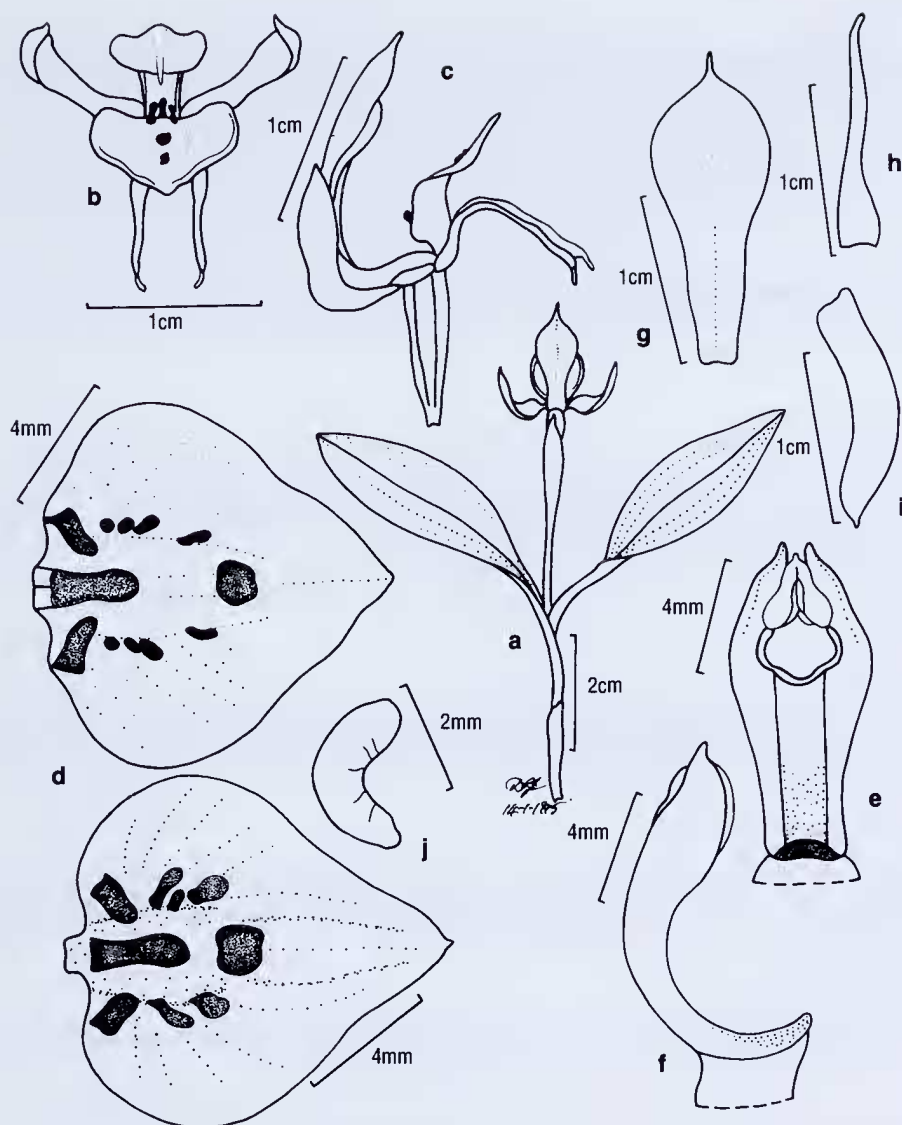


Fig. 1. *Chiloglottis jeanesii* (Jones 13809): **a** plant habit; **b** flower from front; **c** flower from side; **d** two labella, flattened out; **e** column from front; **f** column from side; **g** dorsal sepal; **h** lateral sepal; **i** petal; **j** pollinium.

and 7 mm wide cf. to 30 mm long and 17 mm wide; lateral sepals to 17 mm long and 2.5 mm wide cf. to 23 mm long and 11 mm wide; petals to 16 mm long and 3 mm wide cf. to 23 mm long and 11 mm wide), widely spreading petals (incurved close to the labellum in *C. valida*), three columnar basal calli (one in *C. valida*) and a much narrower column (to 5 mm wide cf. 8 mm in *C. valida*). It shares widely spreading petals with *C. chlorantha* but that species has more lamina calli, especially on the labellum base where 5–9 calli may be grouped together in close proximity (usually three in *C. jeanesii*).

Isozymes

Leaves from sympatric populations growing at Toorongo, Victoria of *Chiloglottis cornuta* (Jones 11254), *C. valida* (Jones 11255) and *C. jeanesii* (Jones 11256) collected by Jeffrey Jeanes in late January 1993 were analysed for seven enzyme systems. All the enzyme systems — isocitrate dehydrogenase (IDM, EC 1.1.1.42), uridine diphospho-gluconic pyrophosphatase (UGP, EC 3.4.11.2), gluco-phosphate dehydrogenase (GPI, EC 5.3.1.9), malate dehydrogenase (MDH, EC 1.1.1.37), menadine reductase (MR, EC 1.6.99.2), malic enzyme (ME, EC 1.1.1.82), phosphogluconate dehydrogenase (PGM, EC 2.7.5.1) — were found to be monomorphic. Isozyme banding patterns and migration distances obtained for *C. jeanesii* were identical in all the specimens assayed for all the seven enzyme systems, showing that *C. jeanesii* is not of hybrid origin between *C. valida* and *C. cornuta*.

Pollination

Bower (1996) used three designs of field choice experiments to demonstrate reproductive isolation in eight species of *Chiloglottis* which have a pollination syndrome of sexual deceit involving male thynnine wasps. Multiple choice baiting tests involving *C. valida*, *C. chlorantha* and *C. jeanesii* show that all three species have unique pollinators and that *C. jeanesii* is pollinated by the thynnine wasp *Neozeleboria* aff. *impatiens* (C. Bower pers. comm.). This study will be detailed in a separate paper.

Etymology

It gives me very great pleasure to name this species after Jeffrey Jeanes, botanist and keen photographer. Jeffrey, an Orchidaceae specialist, has assisted my research with specimens, provided constructive criticisms of manuscripts and has brought a number of interesting taxa to my attention.

Conservation Status

Of restricted distribution but locally common and probably overlooked; conserved in the Baw Baw National Park (Backhouse and Jeanes 1995) and the Dandenong Ranges National Park.

Other Specimens Examined

VICTORIA: Sherbrooke Forest, Bower (Jones 14659), 29.xi.1995 (CANB); Toorongo, Jeanes (Jones 11256), 29.i.1993 (CANB).

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